

Filed 05/01/2001

1 of 64

**COMMERCIAL TESTING & ENGINEERING CO.**

ISP0086

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 708-953-9300 FAX: 708-953-9306



Member of the SGS Group (Société Générale de Surveillance)

July 21, 1998

Saeid Kamalpour  
FYI.

PLEASE ADDRESS ALL CORRESPONDENCE TO:  
16130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

INLAND STEEL COMPANY  
Research Laboratory  
3001 East Columbus Drive  
East Chicago, IN 46312  
Attn: Chuck Froman

L. Froman

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Shenago Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled July 1, 1998

P.O. No. 6-H-8802

Date received July 1, 1998

ADDED CSR/CRI 7/21/98

Analysis Report No. 71-70527

Page 1 of 3

	<u>As Received</u>	<u>Dry Basis</u>
% Moisture	2.09	xxxxxx
% Ash	8.64	8.82
CRI		29.7
CSR		56.0
Bulk Density, Lb/Cf		27.0
% Porosity		53.43
Apparent Specific Gravity		0.89
True Specific Gravity		1.911
Stability		61.8
Void Fraction		.5366*

\* Note: Void Fraction performed in a 1 cubic foot box.

METHODS

Ash: ASTM D 3174; Bulk Density: ASTM D 4292; Porosity: Calculated Value; Apparent Specific Gravity: Modified ASTM D 5004; True Specific Gravity: ASTM D 167; Stability: ASTM D 3402  
Void Fraction: Inland Steel in-house procedure

BEST AVAILABLE COPY

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Joseph B. Horner  
Manager, South Holland Laboratory



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July 21, 1998

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East Chicago, IN 46312  
Attn: Chuck Froman

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Page 2 of 3

MINERAL ANALYSISIgnited Basis, % Weight

Silica, SiO <sub>2</sub>	50.00
Alumina, Al <sub>2</sub> O <sub>3</sub>	27.92
Titania, TiO <sub>2</sub>	1.18
Iron oxide, Fe <sub>2</sub> O <sub>3</sub>	7.21
Calcium oxide, CaO	2.02
Magnesium oxide, MgO	0.71
Potassium oxide, K <sub>2</sub> O	1.60
Sodium oxide, Na <sub>2</sub> O	0.55
Sulfur trioxide, SO <sub>3</sub>	1.11
Phosphorus pentoxide, P <sub>2</sub> O <sub>5</sub>	0.31
Strontium oxide, SrO	0.10
Barium oxide, BaO	0.10
Manganese oxide, Mn <sub>3</sub> O <sub>4</sub>	0.07
Undetermined	7.12
	100.00

METHOD

Phosphorus pentoxide: ASTM D 2795; Sulfur trioxide: ASTM D 5016; Barium & Strontium oxide: ASTM D 3682-ICP  
Balance of oxides: ASTM D 3682

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Horner*  
Manager, South Holland Laboratory



OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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TERMS AND CONDITIONS ON REVERSE

**COMMERCIAL TESTING & ENGINEERING CO.**

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July 21, 1998

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Date sampled July 1, 1998

P.O. No. 6-H-8802

Date received July 1, 1998

ADDED CSR/CRI 7/21/98

Analysis Report No. 71-70527

Page 3 of 3

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	4.20	4.20	95.80
3" Sq	2" Sq	41.41	45.61	54.39
2" Sq	1 1/4" Sq	45.19	90.80	9.20
1 1/4" Sq	1" Sq	6.73	97.53	2.47
1" Sq	3/8" Sq	1.39	98.92	1.08
3/8" Sq	0	1.08	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,  
 COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Housh*  
 Manager, South Holland Laboratory *sm*



**COMMERCIAL TESTING & ENGINEERING CO.**

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16130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

August 31, 1998

INLAND STEEL COMPANY  
Plant 2 Blast Furnaces (2-606)  
3210 Watling Street  
East Chicago, IN 46312  
Attn: Chuck Froman

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled August 7, 1998

P.O. No. 6-H-8802

Date received August 7, 1998

Analysis Report No. 71-73635

Page 1 of 4

CRI	21.1
CSR	69.9
Bulk Density, Lb/Cf	30.6
% Porosity	48.70
Apparent Specific Gravity	0.99
True Specific Gravity	1.93
Stability	62.8
Void Fraction	.5504

\* Note: Void Fraction performed in a 1 cubic foot box.

METHODS

Bulk Density: ASTM D 4292; Porosity: Calculated Value; Apparent Specific Gravity: Modified ASTM D 5004; True Specific Gravity: ASTM D 167; Stability: ASTM D 3402  
Void Fraction: Inland Steel in-house procedure

10/7/98

Bill,

FYI.

CAF

CO.



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SOUTH HOLLAND, IL 60473  
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FAX: (708) 333-3060

August 31, 1998

INLAND STEEL COMPANY  
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3210 Watling Street  
East Chicago, IN 46312  
Attn: Chuck Froman

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled August 7, 1998

P.O. No. 6-H-8802

Date received August 7, 1998

Analysis Report No. 71-73635

Page 2 of 4

MINERAL ANALYSISIgnited Basis, % Weight

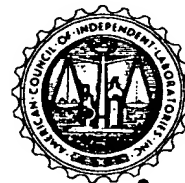
Silica, SiO <sub>2</sub>	51.00
Alumina, Al <sub>2</sub> O <sub>3</sub>	27.30
Titania, TiO <sub>2</sub>	1.15
Iron oxide, Fe <sub>2</sub> O <sub>3</sub>	13.46
Calcium oxide, CaO	1.41
Magnesium oxide, MgO	0.72
Potassium oxide, K <sub>2</sub> O	1.80
Sodium oxide, Na <sub>2</sub> O	0.62
Sulfur trioxide, SO <sub>3</sub>	0.83
Phosphorus pentoxide, P <sub>2</sub> O <sub>5</sub>	0.26
Strontium oxide, SrO	0.09
Barium oxide, BaO	0.08
Manganese oxide, Mn <sub>3</sub> O <sub>4</sub>	0.07
Undetermined	1.21
	100.00

METHOD

Phosphorus pentoxide: ASTM D 2795; Sulfur trioxide: ASTM D 5016; Barium & Strontium oxide: ASTM D 3682-ICP  
Balance of oxides: ASTM D 3682

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



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TEL: (708) 331-2900  
FAX: (708) 333-3060

August 31, 1998

INLAND STEEL COMPANY  
Plant 2 Blast Furnaces (2-606)  
3210 Watling Street  
East Chicago, IN 46312  
Attn: Chuck Froman  
Mail Code 2606

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled August 7, 1998

P.O. No. 6-H-8802

Date received August 7, 1998

Analysis Report No. 71-73635

Page 3 of 4

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	2.23	2.23	97.77
3" Sq	2" Sq	32.89	35.12	64.88
2" Sq	1 1/4" Sq	50.99	86.11	13.89
1 1/4" Sq	1" Sq	9.88	95.99	4.01
1" Sq	3/8" Sq	1.96	97.95	2.05
3/8" Sq	0	2.05	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*[Signature]*  
Manager, South Holland Laboratory



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TEL: (708) 331-2900  
FAX: (708) 333-3060

August 31, 1998

INLAND STEEL COMPANY  
Plant 2 Blast Furnaces (2-606)  
3210 Watling Street  
East Chicago, IN 46312  
Attn: Chuck Froman

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled August 7, 1998

P.O. No. 6-H-8802

Date received August 7, 1998

Analysis Report No. 71-73635

Page 4 of 4

SHORT PROXIMATE ANALYSIS

	<u>As Received</u>	<u>Dry Basis</u>	
% Moisture	4.34	XXXXXX	
% Ash	8.84	9.24	
Btu/lb	12660	13234	MAF 14581
% Sulfur	0.70	0.73	

METHODS

Moisture: ASTM D 4931; Ash: ASTM D 4422; Btu/lb: ASTM D 3286; Sulfur: ASTM D 4239 (Method C)

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

ISP0086

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September 22, 1998

PLEASE ADDRESS ALL CORRESPONDENCE TO:  
 18130 VAN DRUNEN RD.  
 SOUTH HOLLAND, IL 60473  
 TEL: (708) 331-2900  
 FAX: (708) 333-3060

INLAND STEEL COMPANY  
 Research Laboratory  
 3001 East Columbus Drive  
 East Chicago, IN 46312  
 Attn: Pinakin Chaubal

Sample identification by  
 CT&E Co.

Kind of sample  
 reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample ID: Indy Furnace Coke  
 No. 6 Stockhouse

Sample taken by CT&E Co.

Date sampled September 2, 1998

Date received September 2, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-75649

Page 1 of 4

SMALL PROXIMATE ANALYSIS

	<u>As Received</u>	<u>Dry Basis</u>
% Moisture	2.75	XXXXXX
% Ash	7.78	8.00
% Volatile	0.51	0.52
% Fixed Carbon	<u>88.96</u>	<u>91.48</u>
	100.00	100.00
% Sulfur	0.50	0.51
CSR		57.8
CRI		32.1

METHODS

Moisture: ASTM D 3302; Ash: ASTM D 3174; Volatile: ASTM D 3175; Fixed Carbon: Calculated Value; ASTM D 3172  
 Sulfur: ASTM D 4239 (Method C); CSR/CRI ASTM D 5341

Respectfully submitted,  
 COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory





**COMMERCIAL TESTING & ENGINEERING CO.**

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18130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 80473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

September 22, 1998

INLAND STEEL COMPANY  
Research Laboratory  
3001 East Columbus Drive  
East Chicago, IN 46312  
Attn: Pinakin ChaubalSample identification by  
CT&E Co.Kind of sample  
reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled September 2, 1998

Sample ID: Indy Furnace Coke  
No. 6 Stockhouse

Date received September 2, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-75649

Page 2 of 4

MINERAL ANALYSISIgnited Basis, % Weight

Silica, SiO <sub>2</sub>	50.74
Alumina, Al <sub>2</sub> O <sub>3</sub>	29.42
Titania, TiO <sub>2</sub>	1.42
Iron oxide, Fe <sub>2</sub> O <sub>3</sub>	13.12
Calcium oxide, CaO	0.76
Magnesium oxide, MgO	0.75
Potassium oxide, K <sub>2</sub> O	1.75
Sodium oxide, Na <sub>2</sub> O	0.75
Sulfur trioxide, SO <sub>3</sub>	0.15
Phosphorus pentoxide, P <sub>2</sub> O <sub>5</sub>	0.18
Strontium oxide, SrO	0.11
Barium oxide, BaO	0.11
Manganese oxide, Mn <sub>3</sub> O <sub>4</sub>	0.10
Undetermined	0.64
	100.00

METHODPhosphorus pentoxide: ASTM D 2795; Sulfur trioxide: ASTM D 5016; Barium & Strontium oxide: ASTM D 3682-ICP  
Balance of oxides: ASTM D 3682Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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TERMS AND CONDITIONS ON REVERSE

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SINCE 1908

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September 22, 1998

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Research Laboratory  
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Attn: Pinakin ChaubalSample identification by  
CT&E Co.Kind of sample  
reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Sample ID: Indy Furnace Coke  
No. 6 Stockhouse

Date sampled September 2, 1998

Date received September 2, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-75649

Page 3 of 4

SIEVE ANALYSIS

Passing	Retained on	% Weight	CUMULATIVE RESULTS	
			% Retained	% Passing
-----	4" Sq	0.00	0.00	100.00
4" Sq	3 1/2" Sq	0.00	0.00	100.00
3 1/2" Sq	3" Sq	1.14	1.14	98.86
3" Sq	2 1/2" Sq	6.00	7.14	92.86
2 1/2" Sq	2" Sq	18.12	25.26	74.74
2" Sq	1 1/2" Sq	41.69	66.95	33.05
1 1/2" Sq	1 1/4" Sq	20.15	87.10	12.90
1 1/4" Sq	1" Sq	9.12 <sub>30.96</sub>	96.22	3.78
1" Sq	0	3.78	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



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TERMS AND CONDITIONS ON REVERSE

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3080

September 22, 1998

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Research Laboratory  
3001 East Columbus Drive  
East Chicago, IN 46312  
Attn: Pinakin Chaubal

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample ID: Indy Furnace Coke  
No. 6 Stockhouse

Sample taken by CT&amp;E Co.

Date sampled September 2, 1998

Date received September 2, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-75649

Page 4 of 4

Bulk Density, lb/cf	31.3
Apparent Specific Gravity	0.958
True Specific Gravity	1.89
Porosity	49.31
Void Fraction	0.5019 *

Tumbler Test

Stability	62.8
Hardness	64.8

\* NOTE: Void Fraction performed in a 1 cubic foot box.

METHODS

Bulk Density: ASTM D 4292; Porosity: Calculated Value; Apparent Specific Gravity, True Specific Gravity, & Porosity: ASTM D 167; Stability/Hardness: ASTM D3402  
Void Fraction: Inland in-house procedure

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory





Appl. No. 09/846,829

Filed 05/01/1991

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EXHIBIT D

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TEL: (708) 331-2900  
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October 23, 1998

INLAND STEEL COMPANY  
Plant 2 Blast Furnaces (2-606)  
3210 Watling Street  
East Chicago, IN 46312  
Attn: Chuck Froman

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample ID: Mitsui Furnace Coke  
No. 6 Stockhouse

Sample taken by CT&E Co.

Date sampled September 30, 1998

Date received September 30, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-77195

Page 1 of 4

## SHORT PROXIMATE ANALYSIS

	<u>As Received</u>	<u>Dry Basis</u>	
% Moisture	5.63	XXXXX	
% Ash	10.02	10.62	
Btu/lb	12213	12942	MAF 14480
% Sulfur	0.57	0.60	

### METHODS

Moisture: ASTM D 4931; Ash: ASTM D 4422; Btu/lb: ASTM D 3286; Sulfur: ASTM D 4239 (Method C)

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory





Appl. No. 89/846 828

Filed 05/01/2001

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EXHIBIT D

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October 23, 1998

INLAND STEEL COMPANY  
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3210 Watling Street  
East Chicago, IN 46312  
Attn: Chuck Froman

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample ID: Mitsui Furnace Coke  
No. 6 Stockhouse

Sample taken by CT&E Co.

Date sampled September 30, 1998

Date received September 30, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-77195

Page 2 of 4

CRI	22.75
CSR	66.15
Bulk Density, Lb/Cf	33.4
% Porosity	49.47
Apparent Specific Gravity	0.96
True Specific Gravity	1.90
Stability	62.5
Void Fraction	.5158

\* Note: Void Fraction performed in a 1 cubic foot box.

**METHODS**

Bulk Density: ASTM D 4292; Porosity: Calculated Value; Apparent Specific Gravity: Modified ASTM D 5004; True Specific Gravity: ASTM D 167; Stability: ASTM D 3402  
Void Fraction: Inland Steel in-house procedure

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



SINCE 1928

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TEL: (708) 331-2900  
FAX: (708) 333-3060

October 23, 1998

INLAND STEEL COMPANY  
Plant 2 Blast Furnaces (2-606)  
3210 Watling Street  
East Chicago, IN 46312  
Attn: Chuck Froman

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Mitsui Furnace Coke  
No. 6 Stockhouse

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled September 30, 1998

Date received September 30, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-77195

Page 3 of 4

MINERAL ANALYSISIgnited Basis, % Weight

Silica, SiO <sub>2</sub>	55.81
Alumina, Al <sub>2</sub> O <sub>3</sub>	31.62
Titania, TiO <sub>2</sub>	1.47
Iron oxide, Fe <sub>2</sub> O <sub>3</sub>	3.93
Calcium oxide, CaO	2.13
Magnesium oxide, MgO	0.75
Potassium oxide, K <sub>2</sub> O	0.80
Sodium oxide, Na <sub>2</sub> O	0.51
Sulfur trioxide, SO <sub>3</sub>	0.45
Phosphorus pentoxide, P <sub>2</sub> O <sub>5</sub>	0.65
Strontium oxide, SrO	0.10
Barium oxide, BaO	0.20
Manganese oxide, Mn <sub>3</sub> O <sub>4</sub>	0.07
Undetermined	1.51
	100.00

METHOD

Phosphorus pentoxide: ASTM D 2795; Sulfur trioxide: ASTM D 5016; Barium & Strontium oxide: ASTM D 3682-1CP  
Balance of oxides: ASTM D 3682

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



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16130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3080

October 23, 1998

INLAND STEEL COMPANY  
Plant 2 Blast Furnaces (2-606)  
3210 Watling Street  
East Chicago, IN 46312  
Attn: Chuck Froman  
Mail Code 2606

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample taken at Inland Steel Company

Sample ID: Mitsui Furnace Coke  
No. 6 Stockhouse

Sample taken by CT&E Co.

Date sampled September 30, 1998

Date received September 30, 1998

P.O. No. 6-H-8802

Analysis Report No. 71-77195

Page 4 of 4

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.34	0.34	99.66
4" Sq	3" Sq	2.83	3.17	96.83
3" Sq	2" Sq	29.31	32.48	67.52
2" Sq	1 1/4" Sq	56.97	89.45	10.55
1 1/4" Sq	1" Sq	7.06	96.51	3.49
1" Sq	3/8" Sq	1.03	97.54	2.46
3/8" Sq	0	2.46	100.00	0.00
		3.49		

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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SINCE 1908

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16130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

November 3, 1998

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8232  
East Chicago, IN 46312  
Attn: Bill Ambry - M/C 8161

Sample identification by  
Inland Steel Company

Kind of sample  
reported to us Furnace Coke

Sample ID: Mitsui Furnace Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled October 21, 1998

Release No. xxx  
P.O. No. 6-H-8802

Date received October 21, 1998

Analysis Report No. 71-78623

Page 1 of 1

Porosity	50.00
Apparent Specific Gravity	0.97
True Specific Gravity	1.94

METHODS

Porosity: Calculated Value; Apparent Specific Gravity  
True Specific Gravity: ASTM D 167

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Houser*  
Manager, South Holland Laboratory





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16130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

November 10, 1998

INDIANA HARBOR COKE COMPANY  
3210 Watling St. Mail C. 2-990  
East Chicago, IN 46312  
Attn: Joan Etter

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Metallurgical Furnace Coke

Sample ID: 103198-A

Sample taken at Indiana Harbor Coke Co.

Sample taken by Mechanical by CT&amp;E Co.

Date sampled October 31, 1998

Date received October 31, 1998

Analysis Report No. 71-79183

Page 1 of 1

Apparent Specific Gravity	0.97
True Specific Gravity	1.93
Porosity	49.7

METHODS

ASG/TSG/Porosity: ASTM D 167

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Abusery*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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November 10, 1998

INDIANA HARBOR COKE COMPANY  
3210 Watling St. Mail C. 2-990  
East Chicago, IN 46312  
Attn: Joan Etter

PLEASE ADDRESS ALL CORRESPONDENCE TO:  
16130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2800  
FAX: (708) 333-3060

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample ID: 103098-A

Sample taken by Mechanical by CT&E Co.

Date sampled October 30, 1998

Date received October 30, 1998

Analysis Report No. 71-79151

Page 1 of 1

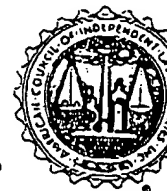
Apparent Specific Gravity 0.94  
True Specific Gravity 1.91  
Porosity 50.8

METHODS

ASG/TSG/Porosity: ASTM D 167

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Abuser*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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November 10, 1998

INDIANA HARBOR COKE COMPANY  
3210 Watling St. Mail C. 2-990  
East Chicago, IN 46312  
Attn: Joan Etter

PLEASE ADDRESS ALL CORRESPONDENCE TO:  
16130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample ID: 102998-A

Sample taken by Mechanical by CT&E Co.

Date sampled October 29, 1998

Date received October 29, 1998

Analysis Report No. 71-79166

Page 1 of 1

Apparent Specific Gravity	0.95
True Specific Gravity	1.93
Porosity	50.8

METHODS

ASG/TSG/Porosity: ASTM D 167

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Anderson*  
Manager, South Holland Laboratory





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Member of the SGS Group (Société Générale de Surveillance)

November 23, 1998

INDIANA HARBOR COKE COMPANY  
3210 Watling St. Mail C. 2-990  
East Chicago, IN 46312  
Attn: Joan Etter

PLEASE ADDRESS ALL CORRESPONDENCE TO:  
18130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3080

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample ID: 110298-A

Sample taken by Mechanical by CT&E Co.

Date sampled November 2, 1998

Date received November 2, 1998

Analysis Report No. 71-79321

Page 1 of 1

Apparent Specific Gravity	0.98
True Specific Gravity	1.94
Porosity	49.5

**METHODS**

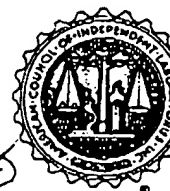
ASG/TSG/Porosity: ASTM D 167

**DISTRIBUTION**

C. Ostenberg - Inland Steel Co.

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Finner*  
Manager, South Holland Laboratory



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November 23, 1998

INDIANA HARBOR COKE COMPANY  
3210 Watling St. Mail C. 2-990  
East Chicago, IN 46312  
Attn: Joan Etter

PLEASE ADDRESS ALL CORRESPONDENCE TO:  
18130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3080

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample taken by Mechanical by CT&E Co.

Date sampled November 1, 1998

Date received November 1, 1998

Sample ID: 110198-A

Analysis Report No. 71-79430

Page 1 of 1

Apparent Specific Gravity 0.97

True Specific Gravity 1.92

Porosity 49.6

METHODS

ASG/TSG/Porosity: ASTM D 167

DISTRIBUTION

C. Ostenberg - Inland Steel Co.

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Abuser*

Manager, South Holland Laboratory



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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Metallurgical Furnace Coke

Sample ID: Calculated Coke Composite  
of IHCC Furnace Coke from  
"A" Battery

Sample taken at Indiana Harbor Coke Co.

Sample taken by Mechanical by CT&E Co.

Date sampled October 29-31, 1998

November 1-2, 1998

Date received November 24, 1998

P.O. No. 6-J-8802

Analysis Report No. 71-80913-1

Page 1 of 3

**SMALL PROXIMATE ANALYSIS**

	<u>As Received</u>	<u>Dry Basis</u>
% Moisture	4.27	xxxxx
% Ash	8.39	8.76
% Volatile	0.41	0.43
% Fixed Carbon	<u>86.93</u>	<u>90.81</u>
	100.00	100.00
% Sulfur	0.61	0.64

**METHODS**

Moisture: ASTM D 3302; Ash: ASTM D 3174; Volatile: ASTM D 3175; Fixed Carbon: Calculated Value; ASTM D 3172  
Sulfur: ASTM D 4239 (Method C)

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
CT&E Co.Kind of sample  
reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample taken by Mechanical by CT&amp;E Co.

Date sampled October 29-31, 1998

November 1-2, 1998

Date received November 24, 1998

Sample ID: Calculated Coke Composite  
of IHCC Furnace Coke from  
"A" Battery

P.O. No. 6-J-8802

Analysis Report No. 71-80913-1

Page 2 of 3

Porosity 50.26

Apparent Specific Gravity 0.96

True Specific Gravity 1.93

Bulk Density lb/ft<sup>3</sup> 29.5METHODSTrue & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value  
Density: ASTM D 291Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
CT&E Co.Kind of sample  
reported to us Metallurgical Furnace Coke

Sample taken at Indiana Harbor Coke Co.

Sample ID: Calculated Coke Composite  
of IHCC Furnace Coke from  
"A" Battery

Sample taken by Mechanical by CT&amp;E Co.

Date sampled October 29-31, 1998  
November 1-2, 1998

Date received November 24, 1998

P.O. No. 6-J-8802

Analysis Report No. 71-80913-1

Page 3 of 3

SIEVE ANALYSIS

Passing	Retained on	% Weight	CUMULATIVE RESULTS	
			% Retained	% Passing
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	10.01	10.01	89.99
3" Sq	2" Sq	41.22	51.23	48.77
2" Sq	1" Sq	45.42	96.65	3.35
1" Sq	0	3.35	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory





**COMMERCIAL TESTING & ENGINEERING CO.**

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
Citizens G & C PersonnelKind of sample  
reported to us Furnace CokeSample ID: Indy Coke  
Drum #5

Sample taken at Citizens G &amp; C, Indianapolis, IN

Sample taken by Citizens G &amp; C Personnel

Date sampled -----

Date received November 24, 1998

P.O. No. 6-J-8802

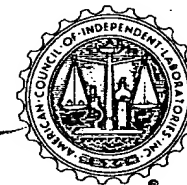
Analysis Report No. 71-80592

Page 1 of 2

Porosity	49.46
Apparent Specific Gravity	0.93
True Specific Gravity	1.84
Bulk Density lb/ft <sup>3</sup>	25.7

METHODSTrue & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value  
Density: ASTM D 291Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
Citizens G & C PersonnelKind of sample  
reported to us Furnace CokeSample ID: Indy Coke  
Drum #5

Sample taken at Citizens G &amp; C, Indianapolis, IN

Sample taken by Citizens G &amp; C Personnel

Date sampled. -----

Date received November 24, 1998

P.O. No.6-J-8802

Analysis Report No. 71-80592

Page 2 of 2

SIEVE ANALYSIS

Passing	Retained on	% Weight	CUMULATIVE RESULTS	
			% Retained	% Passing
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	24.97	24.97	75.03
3" Sq	2" Sq	55.80	80.77	19.23
2" Sq	1" Sq	18.23	99.00	1.00
1" Sq	0	1.00	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.  
Manager, South Holland Laboratory

**COMMERCIAL TESTING & ENGINEERING CO.**

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SOUTH HOLLAND, IL 60473  
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FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
Citizens G & C Personnel

Kind of sample  
reported to us Furnace Coke

Sample ID: Indy Coke  
Drum #4

Sample taken at Citizens G & C, Indianapolis, IN

Sample taken by Citizens G & C Personnel

Date sampled -----

Date received November 24, 1998

P.O. No. 6-J-8802

Analysis Report No. 71-80591

Page 1 of 2

Porosity 49.46

Apparent Specific Gravity 0.94

True Specific Gravity 1.86

Bulk Density lb/ft<sup>3</sup> 25.7

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value  
Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
Citizens G & C Personnel

Kind of sample  
reported to us    Furnace Coke

Sample ID:    Indy Coke  
                 Drum #4

Sample taken at    Citizens G &amp; C, Indianapolis, IN

Sample taken by    Citizens G &amp; C Personnel

Date sampled    -----

Date received    November 24, 1998

P.O. No. 6-J-8802

Analysis Report No.    71-80591

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	9.87	9.87	90.13
3" Sq	2" Sq	45.57	55.44	44.56
2" Sq	1" Sq	41.90	97.34	2.66
1" Sq	0	2.66	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*[Signature]*  
(Manager, South Holland Laboratory)



**COMMERCIAL TESTING & ENGINEERING CO.**

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16130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
Citizens G & C PersonnelKind of sample  
reported to us Furnace CokeSample ID: Indy Coke  
Drum #3

Sample taken at Citizens G &amp; C, Indianapolis, IN

Sample taken by Citizens G &amp; C Personnel

Date sampled -----

Date received November 24, 1998

P.O. No. 6-J-8802

Analysis Report No. 71-80590

Page 1 of 2

Porosity 47.51

Apparent Specific Gravity 0.95

True Specific Gravity 1.81

Bulk Density lb/ft<sup>3</sup> 27.1METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value

Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

ISP0086

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16130 VAN DRUNEN RD.

SOUTH HOLLAND, IL 60473

TEL: (708) 331-2900

FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
Citizens G & C Personnel

Kind of sample  
reported to us Furnace Coke

Sample ID: Indy Coke  
Drum #3

Sample taken at Citizens G & C, Indianapolis, IN

Sample taken by Citizens G & C Personnel

Date sampled -----

Date received November 24, 1998.

P.O. No. 6-J-8802

Analysis Report No. 71-80590

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	10.48	10.48	89.52
3" Sq	2" Sq	34.64	45.12	54.88
2" Sq	1" Sq	51.43	96.55	3.45
1" Sq	0	3.45	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



5/01/2001  
**COMMERCIAL TESTING & ENGINEERING CO.**

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**SINCE 1908**

Member of the SGS Group (Société Générale de Surveillance)

**PLEASE ADDRESS ALL CORRESPONDENCE TO:**  
16130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
Citizens G & C Personnel

Kind of sample  
reported to us      Furnace Coke

Sample ID: Indy Coke  
Drum #2

Sample taken at Citizens G & C, Indianapolis, IN

Sample taken by Citizens G & C Personnel

Date sampled -----

Date received November 24, 1998

P.O. No. 6-J-8802

Analysis Report No. 71-80589

Page 1 of 2

Porosity	49.73
----------	-------

Apparent Specific Gravity 0.93

True Specific Gravity	1.85
-----------------------	------

Bulk Density lb/ft<sup>3</sup> 27.4

## METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value  
Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
Citizens G & C Personnel

Kind of sample  
reported to us    Furnace Coke

Sample ID:    Indy Coke  
                 Drum #2

Sample taken at    Citizens G &amp; C, Indianapolis, IN

Sample taken by    Citizens G &amp; C Personnel

Date sampled    -----

Date received    November 24, 1998

P.O. No. 6-J-8802

Analysis Report No.    71-80589

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	12.48	12.48	87.52
3" Sq	2" Sq	52.97	65.45	34.55
2" Sq	1" Sq	32.41	97.86	2.14
1" Sq	0	2.14	100.00	0.00

METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph A. [Signature]*  
Manager, South Holland Laboratory





**COMMERCIAL TESTING & ENGINEERING CO.**

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
Citizens G & C Personnel

Kind of sample  
reported to us    Furnace Coke

Sample ID:    Indy Coke  
                 Drum #1

Sample taken at    Citizens G & C, Indianapolis, IN

Sample taken by    Citizens G & C Personnel

Date sampled    -----

Date received    November 24, 1998

P.O. No. 6-J-8802

Analysis Report No.    71-80588

Page 1 of 2

Porosity    48.07

Apparent Specific Gravity    0.94

True Specific Gravity    1.81

Bulk Density lb/ft<sup>3</sup>    27.5

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value  
Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



# COMMERCIAL TESTING & ENGINEERING CO.

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January 21, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
Citizens G & C Personnel

Kind of sample  
reported to us Furnace Coke

Sample ID: Indy Coke  
Drum #1

Sample taken at Citizens G & C, Indianapolis, IN

Sample taken by Citizens G & C Personnel

Date sampled -----

Date received November 24, 1998

P.O. No. 6-J-8802

Analysis Report No. 71-80588

Page 2 of 2

## SIEVE ANALYSIS

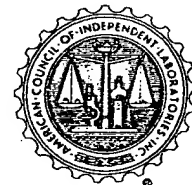
<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	12.82	12.82	87.18
3" Sq	2" Sq	36.51	49.33	50.67
2" Sq	1" Sq	46.40	95.73	4.27
1" Sq	0	4.27	100.00	0.00

### METHOD

Sieve Analysis: ASTM D 293

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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TEL: (708) 331-2900  
FAX: (708) 333-3060

February 10, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Mitsui Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 1, 1999

Date received February 2, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-84902

Page 1 of 2

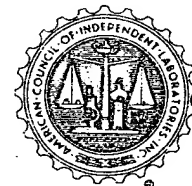
Porosity	51.55
Apparent Specific Gravity	0.94
True Specific Gravity	1.95
Bulk Density lb/ft <sup>3</sup>	35.1

METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Frouse*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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 TEL: (708) 331-2900  
 FAX: (708) 333-3060

February 10, 1999

INLAND STEEL COMPANY  
 3210 Watling Street  
 Mail Code 8161  
 East Chicago, IN 46312  
 Attn: Bill Ambrey

Sample identification by  
 CT&E Co.

Kind of sample  
 reported to us Furnace Coke

Sample ID: Mitsui Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 1, 1999

Date received February 2, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-84902

Page 2 of 2

SIEVE ANALYSIS

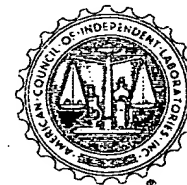
<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	1.22	1.22	98.78
3" Sq	2" Sq	20.54	21.76	78.24
2" Sq	1" Sq	67.82	89.58	10.42
1" Sq	0	10.42	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
 COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
 Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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February 10, 1999

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TEL: (708) 331-2900  
FAX: (708) 333-3060

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Mitsui Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled January 29, 1999

Date received January 29, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-84771

Page 1 of 2

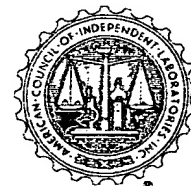
Porosity	48.26
Apparent Specific Gravity	0.98
True Specific Gravity	1.89
Bulk Density lb/ft <sup>3</sup>	34.9

METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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FAX: (708) 333-3060

February 10, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
CT&E Co.Kind of sample  
reported to us Furnace Coke

Sample ID: Mitsui Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled January 29, 1999

Date received January 29, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-84771

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.65	0.65	99.35
4" Sq	3" Sq	2.59	3.24	96.76
3" Sq	2" Sq	33.62	36.86	63.14
2" Sq	1" Sq	57.75	94.61	5.39
1" Sq	0	5.39	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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TEL: (708) 331-2900  
FAX: (708) 333-3060

February 10, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 1, 1999

Date received February 2, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-84901

Page 1 of 2

Porosity	52.56
Apparent Specific Gravity	0.90
True Specific Gravity	1.90
Bulk Density lb/ft <sup>3</sup>	33.1

METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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FAX: (708) 333-3060

February 10, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
CT&E Co.Kind of sample  
reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 1, 1999

Date received February 2, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-84901

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	1.44	1.44	98.56
3" Sq	2" Sq	21.85	23.29	76.71
2" Sq	1" Sq	61.86	85.15	14.85
1" Sq	0	14.85	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.*Joseph B. Hruska*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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TEL: (708) 331-2900  
FAX: (708) 333-3060

February 10, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us    Furnace Coke

Sample ID:    Shenango Coke

Sample taken at    Inland Steel Company

Sample taken by    CT&amp;E Co.

Date sampled    January 29, 1999

Date received    January 29, 1999

P.O. No. 6-J-8802

Analysis Report No.    71-84770

Page    1 of    2

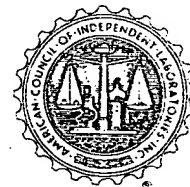
Porosity	55.32
Apparent Specific Gravity	0.84
True Specific Gravity	1.88
Bulk Density lb/ft <sup>3</sup>	31.2

METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Frieser*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

ISP0086

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SINCE 1908

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February 10, 1999

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 TEL: (708) 331-2900  
 FAX: (708) 333-3060

INLAND STEEL COMPANY  
 3210 Watling Street  
 Mail Code 8161  
 East Chicago, IN 46312  
 Attn: Bill Ambrey

Sample identification by  
 CT&E Co.

Kind of sample  
 reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled January 29, 1999

Date received January 29, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-84770

Page 2 of 2

SIEVE ANALYSIS

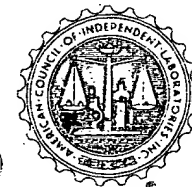
<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	4.82	4.82	95.18
3" Sq	2" Sq	27.89	32.71	67.29
2" Sq	1" Sq	55.96	88.67	11.33
1" Sq	0	11.33	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
 COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
 Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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TEL: (708) 331-2900  
FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Usx Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 2, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received February 3, 1999

Analysis Report No. 71-84979

Page 1 of 2

Porosity	51.61
Apparent Specific Gravity	0.90
True Specific Gravity	1.86
Bulk Density lb/ft <sup>3</sup>	31.7

METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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February 18, 1999

INLAND STEEL COMPANY  
 3210 Watling Street  
 Mail Code 8161  
 East Chicago, IN 46312  
 Attn: Bill Ambrey

Sample identification by  
 CT&E Co.

Kind of sample  
 reported to us Furnace Coke

Sample ID: Usx Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 2, 1999

Release No. XXX  
 P.O. No. 6-J-8802

Date received February 3, 1999

Analysis Report No. 71-84979

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>%Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	2.83	2.83	97.17
3" Sq	2" Sq	35.10	37.93	62.07
2" Sq	1" Sq	55.68	93.61	6.39
1" Sq	0	6.39	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
 COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Fouser*  
 Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

ISP0086

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us    Furnace Coke

Sample ID: Mitsui Coke

Sample taken at    Inland Steel Company

Sample taken by    CT&amp;E Co.

Date sampled    February 3, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received    February 3, 1999

Analysis Report No.    71-85066

Page    1 of    2

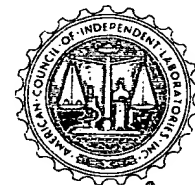
Porosity	47.28
Apparent Specific Gravity	0.97
True Specific Gravity	1.84
Bulk Density lb/ft <sup>3</sup>	33.6

METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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February 18, 1999

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3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us    Furnace Coke

Sample ID: Mitsui Coke

Sample taken at    Inland Steel Company

Sample taken by    CT&amp;E Co.

Date sampled    February 3, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received    February 3, 1999

Analysis Report No.    71-85066

Page    2    of    2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	3.80	3.80	96.20
3" Sq	2" Sq	28.29	32.09	67.91
2" Sq	1" Sq	62.80	94.89	5.11
1" Sq	0	5.11	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Fouser*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 708-953-9300 FAX: 708-953-9306

SINCE 1908

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PLEASE ADDRESS ALL CORRESPONDENCE TO:

16130 VAN DRUNEN RD.  
SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
CT&E Co.Kind of sample  
reported to us Furnace Coke

Sample ID: USX Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 3, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received February 3, 1999

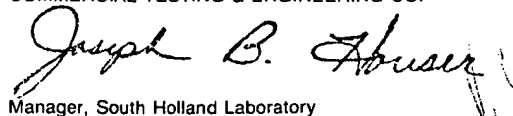
Analysis Report No. 71-85067

Page 1 of 2

Porosity	51.10
Apparent Specific Gravity	0.89
True Specific Gravity	1.82
Bulk Density lb/ft <sup>3</sup>	32.6

METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.  
Manager, South Holland Laboratory

**COMMERCIAL TESTING & ENGINEERING CO.**

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TEL: (708) 331-2900

FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us    Furnace Coke

Sample ID:    USX Coke

Sample taken at    Inland Steel Company

Sample taken by    CT&amp;E Co.

Date sampled    February 3, 1999

Release No. XXX

Date received    February 3, 1999

P.O. No. 6-J-8802

Analysis Report No.    71-85067

Page    2 of    2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	0.60	0.60	99.40
3" Sq	2" Sq	22.62	23.22	76.78
2" Sq	1" Sq	58.49	81.71	18.29
1" Sq	0	18.29	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Fouser*

Manager, South Holland Laboratory





**COMMERCIAL TESTING & ENGINEERING CO.**

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FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us    Furnace Coke

Sample ID: Mitsui Coke

Sample taken at    Inland Steel Company

Sample taken by    CT&amp;E Co.

Date sampled    February 2, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received    February 3, 1999

Analysis Report No.    71-84978

Page    1 of    2

Porosity	47.28
Apparent Specific Gravity	0.97
True Specific Gravity	1.84
Bulk Density lb/ft <sup>3</sup>	38.3

METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
CT&E Co.Kind of sample  
reported to us Furnace Coke

Sample ID: Mitsui Coke

Sample taken at Inland Steel Company.

Sample taken by CT&amp;E Co.

Date sampled February 2, 1999

Release No. XXX

Date received February 3, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-84978

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.38	0.38	99.62
4" Sq	3" Sq	5.91	6.29	93.71
3" Sq	2" Sq	25.89	32.18	67.82
2" Sq	1" Sq	44.19	76.37	23.63
1" Sq	0	23.63	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.*Joseph B. Houser*  
Manager, South Holland Laboratory

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us    Furnace Coke

Sample ID:    Shenango Coke

Sample taken at    Inland Steel Company

Sample taken by    CT&amp;E Co.

Date sampled    February 3, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received    February 3, 1999

Analysis Report No.    71-85065

Page    1 of    2

Porosity	53.55
Apparent Specific Gravity	0.85
True Specific Gravity	1.83
Bulk Density lb/ft <sup>3</sup>	33.5

METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Fouser*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 3, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received February 3, 1999

Analysis Report No. 71-85065

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	3.06	3.06	96.94
3" Sq	2" Sq	26.83	29.89	70.11
2" Sq	1" Sq	45.30	75.19	24.81
1" Sq	0	24.81	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us   Furnace Coke

Sample ID:   Shenago Coke

Sample taken at   Inland Steel Company

Sample taken by   CT&amp;E Co.

Date sampled   February 2, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received   February 3, 1999

Analysis Report No.   71-84977

Page   1 of   2

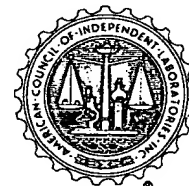
Porosity	51.91
Apparent Specific Gravity	0.88
True Specific Gravity	1.83
Bulk Density lb/ft <sup>3</sup>	30.1

METHODS

True &amp; Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value; Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Fouser*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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FAX: (708) 333-3060

February 18, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Shenago Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 2, 1999

Release No. XXX

Date received February 3, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-84977

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	2.01	2.01	97.99
3" Sq	2" Sq	29.40	31.41	68.59
2" Sq	1" Sq	61.59	93.00	7.00
1" Sq	0	7.00	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

February 19, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us    Furnace Coke

Sample ID: Mitsui Coke

Sample taken at    Inland Steel Company

Sample taken by    CT&amp;E Co.

Date sampled    February 5, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received    February 5, 1999

Analysis Report No.    71-85160

Page    1 of    2

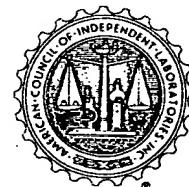
Porosity	51.81
Apparent Specific Gravity	0.93
True Specific Gravity	1.83
Bulk Density lb/ft <sup>3</sup>	32.9

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value  
Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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February 19, 1999

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
CT&E Co.Kind of sample  
reported to us Furnace Coke

Sample ID: Mitsui Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 5, 1999

Release No. XXX

Date received February 5, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-85160

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	2.43	2.43	97.57
3" Sq	2" Sq	23.73	26.16	73.84
2" Sq	1" Sq	67.38	93.54	6.46
1" Sq	0	6.46	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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February 19, 1999

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 5, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received February 5, 1999

Analysis Report No. 71-85159

Page 1 of 2

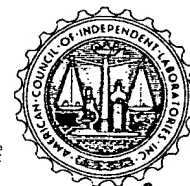
Porosity	52.17
Apparent Specific Gravity	0.88
True Specific Gravity	1.84
Bulk Density lb/ft <sup>3</sup>	32.5

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value  
Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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FAX: (708) 333-3060

February 19, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
CT&E Co.Kind of sample  
reported to us Furnace Coke

Sample ID: Shenango Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 5, 1999

Release No. XXX

Date received February 5, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-85159

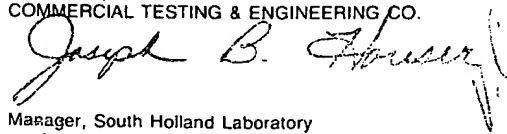
Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	1.06	1.06	98.94
3" Sq	2" Sq	23.23	24.29	75.71
2" Sq	1" Sq	62.47	86.76	13.24
1" Sq	0	13.24	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory





# COMMERCIAL TESTING & ENGINEERING CO.

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TEL: (708) 331-2900  
FAX: (708) 333-3060

February 19, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: USX Coke

Sample taken at Inland Steel Company

Sample taken by CT&E Co.

Date sampled February 5, 1999

Release No. XXX  
P.O. No. 6-J-8802

Date received February 5, 1999

Analysis Report No. 71-85161

Page 1 of 2

Porosity	50.00
Apparent Specific Gravity	0.90
True Specific Gravity	1.80
Bulk Density lb/ft <sup>3</sup>	34.3

## METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value  
Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

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FAX: (708) 333-3060

February 19, 1999

INLAND STEEL COMPANY  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
CT&E Co.Kind of sample  
reported to us Furnace Coke

Sample ID: USX Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 5, 1999

Release No. XXX

Date received February 5, 1999

P.O. No. 6-J-8802

Analysis Report No. 71-85161

Page 2 of 2

SIEVE ANALYSIS

<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	2.66	2.66	97.34
3" Sq	2" Sq	25.51	28.17	71.83
2" Sq	1" Sq	49.98	78.15	21.85
1" Sq	0	21.85	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.*Joseph B. Ambrey*  
Manager, South Holland Laboratory

**COMMERCIAL TESTING & ENGINEERING CO.**

ISP0086

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 708-953-9300 FAX: 708-953-9306

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SOUTH HOLLAND, IL 60473  
TEL: (708) 331-2900  
FAX: (708) 333-3060

March 8, 1999

ISPAT INLAND, INC.  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

Sample identification by  
CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: USX Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled January 29, 1999

Date received January 29, 1999

P.O. No. 6-J-8802  
REVISED SIEVE ANALYSIS 03/08/99

Analysis Report No. 71-84772

Page 1 of 2

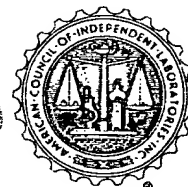
Porosity	53.30
Apparent Specific Gravity	0.92
True Specific Gravity	1.97
Bulk Density lb/ft <sup>3</sup>	33.0

METHODS

True & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value  
Density: ASTM D 291

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

GENERAL OFFICES: 1919 SOUTH HIGHLAND AVE., SUITE 210-B, LOMBARD, ILLINOIS 60148 • TEL: 708-953-9300 FAX: 708-953-9306

SINCE 1908

Member of the SGS Group (Société Générale de Surveillance)

March 8, 1999

PLEASE ADDRESS ALL CORRESPONDENCE TO:

16130 VAN DRUNEN RD.

SOUTH HOLLAND, IL 60473

TEL: (708) 331-2900

FAX: (708) 333-3060

ISPAT INLAND, INC.  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill Ambrey

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CT&E Co.

Kind of sample  
reported to us Furnace Coke

Sample ID: USX Coke

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Page 2 of 2

SIEVE ANALYSIS

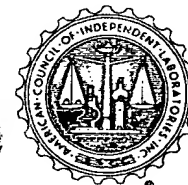
<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	1.48	1.48	98.52
3" Sq	2" Sq	55.66	57.14	42.86
2" Sq	1" Sq	24.25	81.39	18.61
1" Sq	0	18.61	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Ambrey*  
Manager, South Holland Laboratory



**COMMERCIAL TESTING & ENGINEERING CO.**

ISP0086

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TEL: (708) 331-2900  
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March 8, 1999

ISPAT INLAND, INC.  
3210 Watling Street  
Mail Code 8161  
East Chicago, IN 46312  
Attn: Bill AmbreySample identification by  
CT&E Co.Kind of sample  
reported to us Furnace Coke

Sample ID: USX Coke

Sample taken at Inland Steel Company

Sample taken by CT&amp;E Co.

Date sampled February 1, 1999

P.O. No. 6-J-8802

Date received February 2, 1999

REVISED SIEVE ANALYSIS 3/8/99

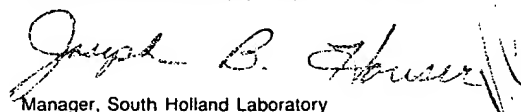
Analysis Report No. 71-84903

Page 1 of 2

Porosity 61.34

Apparent Specific Gravity 0.75

True Specific Gravity 1.95

Bulk Density lb/ft<sup>3</sup> 31.3METHODSTrue & Apparent Specific Gravity: ASTM D 167; Porosity: Calculated Value  
Density: ASTM D 291Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.  
Manager, South Holland Laboratory



Appl. No. 09/846 829

Filed 05/01/2009

**COMMERCIAL TESTING & ENGINEERING CO.**

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EXHIBIT D

64 of 64

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March 8, 1999

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Kind of sample  
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Sample taken by CT&E Co.

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Date received February 2, 1999

Sample ID: USX Coke

P.O. No. 6-J-8802

REVISED SIEVE ANALYSIS 3/8/99

Analysis Report No. 71-84903

Page 2 of 2

SIEVE ANALYSIS

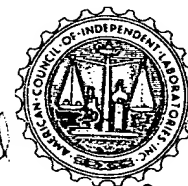
<u>Passing</u>	<u>Retained on</u>	<u>% Weight</u>	<u>CUMULATIVE RESULTS</u>	
			<u>% Retained</u>	<u>% Passing</u>
-----	4" Sq	0.00	0.00	100.00
4" Sq	3" Sq	2.21	2.21	97.79
3" Sq	2" Sq	34.26	36.47	63.53
2" Sq	1" Sq	56.07	92.54	7.46
1" Sq	0	7.46	100.00	0.00

METHOD

Sieve Analysis: ASTM D 4749

Respectfully submitted,  
COMMERCIAL TESTING & ENGINEERING CO.

*Joseph B. Hrusch*  
Manager, South Holland Laboratory



OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS, TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

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